



*MANAGEMENT OF A CITIZEN SCIENCE
GROUP: THE NEW YORK HARBOR SEALs*

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ABSTRACT

To manage the New York Harbor sea, estuary air and land (SEALs) program, a citizen science monitoring program hosted by the Marine Biology Department of the New York Harbor School, many steps are involved. Some of the daily tasks include helping to organize the sampling equipment (YSI Probe, Dissolved Oxygen test kits, test strips) checking in with interns to see if any assistance is required, make sure all work is being done correctly and efficiently, and assist in setting up dates to sample and celebrate events, which is why management is so important, without it there would be inaccurate data and disorganized sampling.

Over the course of three years, the Harbor SEALs have managed to successfully, but not without flaw, sample four different points along the New York Estuary and collect data to submit to the Environmental Protection Agency (E.P.A.). One major problem with the collecting of data would be the lack of constant efficiency with sampling accurately. The best way to deal with this problem would be more practice samplings in the field, in order to improve on the quality of data collected.

Marine Biology Research Program

New York Harbor School, 2015

I. Introduction:

The Harbor SEALS program is an after school citizen science program run by Mauricio Gonzales, the director of the Urban Assembly New York Harbor School's Marine Biology Research program. The citizen science programs mission is to successfully sample water quality along four points on New York estuary to determine the estuary's overall health and ability to sustain life. The Environmental Protection Agency (E.P.A) provided a grant for the project, specifying that at least 30 students must be trained with efficient sampling techniques and we must sample water quality at least twenty-four times.

Organization is key when managing the Harbor SEALS program. All files and information are kept on a computer, backed up on a flash drive and handwritten copies are made as well. Files are created to keep order and manage data. Some of the files that have been created include PowerPoint presentations explaining what will be done for that day, an excel document to keep track of student volunteers, what group they are in, what jersey number belongs to them and what task they have been assigned to them, such as lab technician, data quality manager, data manager, mentor captain and team leader, all other participants are student volunteers.

The Harbor SEALS main task is sampling water quality at four different points along the New York Harbor, in order to monitor the health and ability to sustain a healthy marine ecosystem. Multiple tests are used to sample the quality of the water, including; Dissolved oxygen (Winkler Method, YSI sensor), pH (YSI sensor, test strips, Hana combo sensors), Nitrogen (photometer, test strips), turbidity (turbidity tube) and temperature.

II. Materials:

Item	Quantity	Purpose
Computer	1	Keep track of volunteers and materials; Create slideshows; Create word documents
Flash Drive	1	Back up computer files
Printer	1	Print handouts; Make copies
Paper	N/A	Create handouts
Clipboard	1	Write data
Folder	1	Store extra papers
Attendance Sheet	1	Keep track of volunteer hours

III. Procedures:

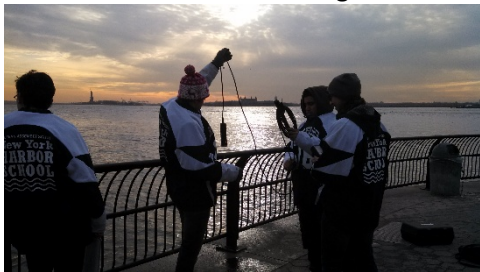
Start Up: In order to start the SEAL's program, some observations of underclassmen, to test to see if they were ready to participate and would be able to keep up with the group. To do this, slide show presentation (See annex 1) explaining what we do in the SEALS was created and shown to the underclassmen. Following up the presentation, we held interviews with the students as a final entry process, and to assist student in preparation for these interviews, documents were created to give tips for being interviewed, (See annex 2) as well as a document listing the questions that the interviewers should ask (Annex 3). Another document was created for the interviewers to fill out while they were interviewing the students to help them keep track, (See annex 4). Once everyone has been interviewed and passes, then we go on to training.

Training: To train the tenth graders, senior and junior SEALS members demonstrate first how basic nutrient tests are conducted by using expired test strips located in the expired test strip container in the lab. Once the tests have been physically demonstrated, new volunteers are asked to perform the tests

on their own under observation. Once test strip nutrient sampling is mastered, the interns are introduced to the more advanced gear, such as Hana combo sensors, YSI sensors, and the Winkler method of testing dissolved oxygen. The same process of teach and apply is used here.

Work Based Learning (WBL): For the WBL, all students must turn in Permission Slip (Annex 5), SIF1 (Contact Information and Work Hours [Annex 6]), SIF2 (Learning Goals and Student Consent [Annex 7]). Finally, show I9 documentation to Mauricio for recommendation in order to complete an Applicant Gateway online application, where the interns must input all information marked with a red star, and check off the box for a virtual signature under the I9 section of Applicant Gateway. While at the on boarding session, you will need your I9 documentation and also your photo ID, and here they will virtually sign off the intern confirming their information, and then they will wait to receive an email with an EIS number and a confirmation to start working. EIS numbers must be present on all time sheets or they will not be accepted and the intern will not be paid.

Sampling: Before every sampling, the project manager needs to check in with other interns to see if there are any problems or need help with getting the sampling equipment in order. Before every sampling, all materials are taken into account and if something is needed, it is reported to project manager and sent to the person in charge of fixing the situation, and at two o'clock during meeting days, an attendance sheet is brought to the cafeteria to pick up snack for volunteers.



Once the team is assembled, all participants separate into their assigned groups assigned in order to begin sampling. Each group has one or two seniors, one to two juniors and two new volunteers, whether they are a freshman or a sophomore does not matter. The two groups going into Manhattan must contain students that demonstrate skill and efficient behavior in order to ensure that once the location is reached, they begin sampling quickly and efficiently in order to collect the needed data to make the 5:30 boat back to Governors Island. Upon arrival, all groups must rinse equipment in the sink, put the equipment away, turn in data sheets to the data quality manager and make sure that all the sample vials are in labeled baggies and stored in the freezer for later sampling.

Snacks: Students names are recorded on an attendance sheet (Annex 8) in order to receive school snack. Once all names are recorded, the paper is signed and dated by the program director (Mauricio Gonzales) and brought at two- thirty to the school cafeteria. Snacks are then brought back to the class room and distributed after sampling and clean-up has been completed.

Student Status: At the end of the first semester, senior SEALS members gather for a small meeting to discuss the student volunteer's behavior and performance and determine if they need to be put on probation or removed from the program due to constant reprimanding. Letters were created to inform students of their probation status (Annex 9) or their removal (Annex 10) and given to the students. Students who are removed from SEALS can't put that they participated on college applications or resumes. Program director (Mauricio Gonzales) sends emails to the removed student's parents to inform them of their status with SEALS.

Organization of the S.E.A.Ls: All documents and information should be stored digitally and in a hard copy form. Use of a flash drive and computer is necessary for this. An excel file should also be created to keep track of who was and is a part of the SEALs program, as well as their emails/ phone numbers (if they are willing to give them) in order to keep everyone informed of upcoming sampling dates or to let the WBL interns know that their hours are due to be turned in. Another purpose to the excel file would be to store the volunteers birthdays, Jersey numbers and team assignments. Another tab was created in order to keep track of the WBL intern hours and how many they have left.



Science Symposium: The tasks that were placed upon the project manager for the science symposium include, creating the symposium booklet, emailing volunteers and PAC members to inform of the date and request assistance with judging of the junior and senior research student projects, sending home a letter to inform parents that students are mandated to participate and will be given time in class and a poster board to present, as well as one asking them to volunteer for the event. Finally, assisting on the actual day of the symposium along with the NYCEF students in the research program, ensuring that the students are all being judged, assisting with the ceremonies and the awards, and helping to set up and clean up after the event.

Facebook: As project manager, you are in charge of updating the Harbor SEALs Facebook page at least twice a month by writing a post explaining upcoming events and due dates, and sharing links from the Harbor SEALs webpage whenever it is updated to keep the public aware of the programs activities and the students aware of their work being celebrated.

IV. Results

The Harbor SEALs managed to sample the mandated 24 times with an extra one, employ eleven students from the research program in paid internship opportunities and host the best Science Symposium we've had yet.

